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13. ABSTRACT (Maximum 200 Words)

The current study examines the effects of a psychological intervention that encourages emotional expression in ovarian cancer patients and their partners. Ovarian cancer patients (n=130) and their partners are randomly assigned to an intervention or a control group. Following Pennebaker's model, subjects in the intervention group are asked to write about their deepest thoughts and feelings regarding their cancer experience for 20 minutes each day for three consecutive days. The control group is asked to write about trivial non-emotional topics. Outcome variables including psychological distress, quality of life, and physical symptoms is assessed at baseline and over a period of nine months after the intervention (one week, three, six, and nine months).

In accordance with our approved Statement of Work data collection is currently underway. To date 52 subjects have been enrolled and are at various stages of the data collection process. Data processing is continuing as planned, including data entry and verification, which has been completed for all subjects currently enrolled in the project. Preliminary data analyses are being conducted.

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Introduction

The current study examines the effects of a psychological intervention that encourages emotional expression in ovarian cancer patients and their partners. Ovarian cancer patients (n=130) and their partners are recruited at Chicago area hospitals. Eligibility of patients includes ability to read and write in English, absence of any concurrent chronic condition or concurrent or prior history of psychiatric disorders, and having a spouse or partner. Patients are recruited between two months to five years after diagnosis, and after completion of active cancer treatment (e.g., surgery, radiation). They are also asked for permission to contact their spouse or partner for recruitment into the study. As it is our goal to recruit a partner for each patient to maximize effectiveness of the intervention, the only exclusion criteria for patients' partners will be inability to read and write in English or any psychiatric disorder that would preclude participation. Patients and their partners are randomly assigned to an intervention or a control group. Subjects in the intervention group are asked to write about their deepest thoughts and feelings regarding their cancer experience for 20 minutes each day for three consecutive days. The control group is asked to write about trivial non-emotional topics. *Intervention Group*: Subjects are told to write continuously for 20 minutes about their deepest thoughts and feelings about their cancer experience (spouses/partners will write about how they have been affected by the patient's illness), and about how it relates to other aspects of their lives, e.g., their family life, relationship with their spouse, sexuality, daily activities, work, social life, etc. The instructions are designed such that subjects will feel free to write about the aspects of their experience that are important to them. To encourage emotional expression, it is emphasized that their writing samples will be kept completely confidential and anonymous and will only be identified by the participant's number, not their name. The essays will later be processed by independent blind readers who have no knowledge of the participant's identity or group assignment. Finally, participants are told to not worry about style, grammar, or spelling and that no feedback will be provided to them regarding the contents of the essays. *Control Group*: Procedures follow standard protocols used in previous research. Subjects are asked to write for 20 minutes each day about a trivial non-emotional topic that is assigned to them (e.g., description of their routine daily activities). Subjects will be told to remain factual and not add any emotional content. All other procedures will be identical to the Intervention Group.

Outcome variables including psychological distress, quality of life, and physical symptoms are assessed at baseline and over a period of nine months after the intervention (one week, three, six, and nine months).

Specific Aim I: To examine the effectiveness of the emotional writing intervention for patients and their partners. **Specific Aim II:** To examine mechanisms for the effects of expressive writing. **Specific Aim III**: To begin to identify those individuals who will be most likely to benefit from this type of intervention.

Body

Task 1: Preparation for the study (month 1 to 2):
The research protocols have been developed including instructions for all aspects of the protocol and questionnaire packets for each assessment. Research assistants have been trained to administer all parts of the protocol including the intervention, all assessments, and debriefings.

Task 2: Data collection (month 2 to 36):
Collaborating physicians are referring research subjects on an ongoing basis. Currently a total of 52 participants have been recruited into the protocol and are at various stages of the data collection process. We are continuing to receive referrals from our collaborators and are screening and recruiting subjects on a regular basis. Interviews and interventions are being conducted by the research assistants and follow-up assessments are done at one week, 3, 6, and 9 months post-intervention as planned. We are keeping track of recruitment and subject follow-up using a computerized database (ongoing). Weekly research meetings are in place to deal with the day to day running of the project.

Task 3: Data processing (month 6 to 36):
Data spreadsheets have been set up and all data currently collected have been entered. Data verification is conducted periodically to ensure accuracy of data processing.

Task 4: Data analyses (month 34-36):
Data analyses on the ovarian cancer patient sample will begin when data collection for this study has reached a reasonable N. Currently analyses have been conducted combining the current sample with samples from two similar studies on gynecological cancer aptients and prostate cancer patients.

Key Research Accomplishments

- Research protocol and referral mechanisms are in place and continue to run as planned.
- A total of 52 subjects are enrolled in the study.
- Additional referrals are being obtained on an ongoing basis and patients are being screened for eligibility.
- Data entry and verification is conducted on an ongoing basis.
- Findings using this sample in combination with other data sets have been presented and published.
- Weekly research meetings are conducted.

Reportable Outcomes

No reportable outcomes are available on the ovarian cancer sample alone so far. This is in line with expectations delineated in our Statement of Work. **Findings described below are based on a combination of the current study sample and other ongoing studise and are not reflective of coping with ovarian cancer specifically but rather gyn and prostate cancers more generally.**

1. Emotional expression is an important means of coping with stressful experiences such as cancer. Social barriers to expression may have adverse effects. Research has suggested that men are less likely to express their emotions and have different patterns of social support compared to women. We examined whether male cancer patients have a lower tendency to express emotions, are less likely to perceive social barriers to expression, and are differentially affected by social barriers from different support sources as compared to women. Questionnaires were administered to 41 gynecological cancer patients and 41 prostate cancer patients using baseline data from the intervention project. There was a trend towards greater emotional expressivity in women as compared to men but no significant gender differences in perceptions of social constraints from spouse/partner or others. Multiple regression analyses revealed that men experienced significantly greater distress in association with social constraints from their spouse/partner than did women. Men may be more vulnerable to social barriers to expression than previously assumed. Gender differences in emotional expressivity may be less important than the social context in which expression takes place.

Zakowski, S.G., Schwab, C., Krueger, N., & Laubmeier, K., Garrett, S., Flanigan, R., Johnson, P. (in press). Social barriers to emotional expression and their relations to distress in male and female cancer patients. British Journal of Health Psychology.

2. Individuals facing the stress of cancer often rely on their social networks to allow them to express their thoughts and emotions in an effort to cope with their illness. However, these efforts are sometimes met with negative responses that inhibit their emotional expression (i.e., social constraints) which in turn may lead to increased distress. We hypothesized that expressive writing would buffer the distress associated with such social barriers. Patients diagnosed with cancer (N=103) within the past five years were

randomly assigned to an experimental group, who wrote about their deepest thoughts and emotions about their cancer experience for 20 minutes a day for three consecutive days, or a control group who wrote about non-emotional topics. Patients (49% male) were ages 25-84, 95% Caucasian, 81% married, and had been diagnosed with prostate or gynecological cancer. They completed the Brief Symptom Inventory (BSI, distress) at baseline and 3 months post-intervention (Time 2), and the Social Constraints Scale (SCS) at baseline. Multiple regression analysis regressing Time 2 distress on baseline distress, SCS, Group, and SCS x Group revealed a significant SCS x Group interaction ($p=.015$) indicating that expressive writing buffered the distress associated with social constraints. These findings suggest that cancer patients whose social network responds negatively to their efforts to express their emotions regarding their cancer may be most likely to benefit from a writing intervention. Patients who encounter few such social barriers may have less of a need for additional emotional outlets. This underscores the importance of matching psychological interventions to patients' needs. These findings have been submitted to *Health Psychology*.

3. Repressive coping marked by a dispositional tendency to suppress disclosure of negative emotions may have adverse effects including increased physiological responses to stressors and progression of disease in cancer patients. We examined whether repressors are less likely to benefit from an expressive writing intervention compared to non-repressors (classified according to Marlowe-Crowne Social Desirability Scale (MCSDS)/Taylor Manifest Anxiety Scale (TMAS)).
Patients diagnosed with prostate or gynecological cancer ($N=109$) within the past five years were randomly assigned to an experimental group, who wrote about their deepest thoughts and emotions about cancer for 20 minutes a day for three days, or a control group who wrote about non-emotional topics. Patients (51% female) were between the ages of 25-84, 95% Caucasian, 81% married. They completed the Brief Symptom Inventory (BSI, distress) at baseline and 3 months post-intervention (Time 2), the TMAS, and the MCSDS. Multiple regression controlling for baseline distress revealed main effects for social desirability and trait anxiety predicting Time 2 distress ($p's<.01$). A TMAS x MCSDS x Group interaction ($p<.04$) revealed that repressive copers (high desirability/low anxiety) benefited the least from the intervention, whereas truly low anxious patients and patients high on anxiety and social desirability benefited the most. Repressed copers may prefer other means of coping with stress and thus not benefit from interventions that focus on emotional expression. Individual differences should be considered when implementing interventions. Presented at the Society of Behavioral Medicine conference, Washington, D.C., April 2002.

4. Another individual difference variable of interest is neuroticism. We examined whether individuals high on trait neuroticism, characterized by chronic display of negative affect, benefit from interventions that focus on emotional expression of negative events or whether these exacerbate their negative affect. We examined depressive symptoms (BSI, POMS) and intrusive thoughts about cancer (IES) in 106 male and female cancer patients before (Baseline) and six months (Follow-up) following the emotional expression intervention. Patients (age: $M=60$, 53% female, 78% married, time since diagnosis: $M=1.5$ years) were randomly assigned to an expression and a control

condition. Multiple regression regressing Depression at 6-month Follow-up on Baseline Depression, Neuroticism (NEO-FFI), Group, and Neuroticism x Group revealed a significant interaction (p's<.01). Participants low on Neuroticism who were in the expression condition experienced decreased depression at follow-up compared to controls. However, those high on trait Neuroticism reported increased depression after the intervention. Interestingly, they also exhibited increased intrusive thoughts as indicated by a Neuroticism x Group interaction (p=.035). It has been theorized that emotional expression may exert its benefits by enhancing cognitive processing of stressful experiences resulting in longterm reductions in intrusive thoughts and concomitant decreases in negative affect. According to our data this was the case for individuals low on Neuroticism, however expression had the opposite effect on high neurotic individuals who responded with increased intrusive thoughts and depression. It is thus essential to take personality differences into account when administering emotional expression interventions to individuals dealing with major life stressors. These findings were presented at the International Society of Behavioral Medicine, Helsinki, Finland, August, 2002.

5. We examined predictors of quality of support provision among spouses of gynecological cancer patients. 48 gyn patients and their spouses were assessed at one time-point for personality variables, social constraints, and distress. We found that spouses' neuroticism was sisgnificantly associated with social constraints (as perceived by the patient). This assoication was partly explained by spouses' higher levels of distress and social constraints from an outside network. These findings suggest that a spouse's personality trait of Neuroticism may contribute to their inability to provide support to a patient due to the heightened levels of distress they are experiencing. These findings were presented at the APS meetins in April, 2003.

6. Life-threatening events challenge one's schema about personal vulnerability. Emotional expression is associated with adjustment to such events possibly by assimilating the information of vulnerability with existing cognitive schemas. Assimilation may occur by changing the meaning of the threat and reducing the individual's sense of vulnerability. We examined whether emotional disclosure about patients' cancer experience would result in reductions in perceptions of vulnerability (e.g.., risk of recurrence). Gynecological (n=69) and prostate cancer (n=69) patients who had completed active cancer treatment, diagnosed within the past 5 years were randomly assigned to write about their emotions regarding their cancer experience or about their daily activities (controls). They completed a Perceived Risk Scale (PRS) and Impact of Events Scale at baseline, 3 and 6 months post-writing. Groups were comparable on demographic and medical characteristics. The PRS, developed for this study, consists of 2 subscales, perceived risk for poor cancer prognosis and worry about risk. Repeated measures ANCOVA revealed a significant time main effect (p<.05) and a significant condition by time interaction (p=.02). Perceptions of risk increased over time but this was moderated by condition. Patients who wrote about their cancer showed less of an increase in risk perceptions than controls. Risk perceptions were significantly correlated with worry and intrusive thoughts about cancer (r's=.38 to .48) suggesting that perceptions of risk play a significant role in psychological adjustment to cancer. Neither

worry nor intrusive thoughts changed as a function of writing condition. Emotional disclosure buffered the increase in perceived risk that patients were experiencing over time. Patients' vulnerability may increase as they are no longer under constant medical supervision. Emotional disclosure may be an effective intervention to prevent this increase.

These findings will be presented at the conference of Emotional (Non)Expression in Tilburg, Netherlands, October, 2003.

Conclusions

The research protocol is running as planned and no modifications are necessary at this point. Findings reported on the present sample in combination with other data sets are summarized above. In comparison to female cancer patients, prostate cancer patients report greater distress in association with social constraints; expressive wiritng is associated with lower perceived threat of recurrence; expressive writing buffers the negative effects of social constraints; repressive copers and neurotics benefit less from expressive writing; spouses' neuroticism interferes with social support given to the patient. We will continue to conduct analyses to address the other study aims as more data are collected.

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